THE USE OF COLLABORATIVE PLANNING TOOLS TO SPEED THE CRISIS DEPLOYMENT PROCESS

GRADUATE RESEARCH PROJECT

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John M. DeLapp, Jr.

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Abstract

The reduction of forces assigned overseas has led to an increased reliance on deployment of forces from the CONUS. The current joint deployment planning process is inefficient and does not match the capabilities of U.S. transportation resources. To facilitate changes to the deployment process, senior leadership has set a time standard for development and validation of a TPFDD within 72-hours for the first seven days of a crisis. Part of improvements to the deployment process needed to meet the 72-hour time standard will be the use of a collaborative planning tool for deployment planning. There are several tools available for this purpose and some collaborative tools are currently used in defense intelligence organizations. Within the last five months, initial assessments of deployment collaborative planning have been conducted. The results of these assessments show that the technology exists to conduct collaborative deployment planning however, the greatest challenge to the operational implementation of a collaborative planning tool will be overcoming communication, service-centric, and command-centric issues. In the last analysis, the people and not the technology will decide whether collaborative planning and the attainment of the 72-hour time standard will be possible.

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I. Introduction

General Issue

In response to changing political realties, the Department of Defense has restructured its forces. The result of these changes is a reduction in forward based forces, which in turn has led to an increased reliance on deployment of CONUS based forces to respond to crises throughout the world. Corresponding to this increased reliance on CONUS based forces is an increased need for rapid, effective, and efficient deployment and mobility systems. With fewer forces that must travel longer distances from home bases, forts, and ports, it has become even more critical to ensure these forces are moved quickly and accurately. Despite the reduction in forces available, the geographic CINCs (warfighters) demand for rapid deployment of CONUS based forces has increased in size and frequency.

Because of these considerations, it is essential to have a process in place that will accurately and quickly identify, source, and task forces for deployment. The senior leadership of the United States recognizes this problem in stating: "To deter aggression, we must have forces that can deploy quickly and supplement U.S. forward based and forward deployed forces." (Clinton, 1995:1) Additionally, former Chairman of the Joint Chiefs of Staff, General John Shalikashvili simply stated "we must be the world's premier deployer" (Joint Pub 3-35, 1999: III-1).

An efficient and effective deployment process is even more critical during crisis action planning. During a crisis one does not have the luxury of a deliberate plan that includes a detailed Time-Phased Force and Deployment Data (TPFDD) ready for action. "Given the great level of detail required to coordinate a large deployment, the rapid generation of the deployment data to support a quick reaction operation such as Allied Force is a monumental task" (Kosovo After-action Report, 1999: 34). The TPFDD must also be flexible and responsive to changes. "Further complicating deployment planning is the fact that the TPFDD is a living document that must be continuously modified in response to changes in the operational situation . . . the deployment data and its planning process must be flexible and responsive to the inevitable shifts in the commander's operational priorities" (Kosovo After-action Report, 1999: 34).

Additionally, the Department of Defense's Kosovo after-action report identified two major factors in Operation Allied Force that contributed to avoidable delays in TPFDD development, one of which was inadequate planning systems (Kosovo After-action Report, 1999: 35). Deployments must be quick, accurate, use a minimum of scarce Defense Transportation System (DTS) resources, and be flexible and responsive to shifts in the war-fighting commander's operational priorities.

In response to this growing concern about the deployment process and the inefficiencies repeatedly experienced during deployment operations, the Secretary of Defense issued a memorandum on 23 October 1998 designating USCINCACOM as the "Joint Deployment Process Owner" (JDPO Charter, 1999: 1). By doing so, the Secretary conferred authority of the deployment process to a single unified command, now United

States Joint Forces Command (USJFCOM), in addition to its other responsibilities under the Unified Command Plan.

The Commander in Chief, USJFCOM, now the DoD Executive Agent for the Joint Deployment Process, was given authority to: 1) ensure proper coordination among the Military Services, the combatant commands, and all other DoD agencies as relating to the deployment process 2) issue directives to other DoD components and take action on behalf of the SECDEF to the extent authorized and 3) provide recommendations to the SECDEF through the Chairman of the Joint Chiefs of Staff regarding deployment process improvement, including the timing and manner of these actions (JDPO charter, 1999: 1). Further, JDPO is tasked in its charter to: "provide guidance and assign responsibilities for improving the effectiveness and efficiency of the joint deployment and redeployment processes" (JDPO, 1999: 1). The issues regarding the deployment process are succinctly stated in the JDPO charter:

> Today's joint deployment and redeployment processes normally achieve the desired results—often through an excessive expenditure of resources. DoD policies, programs, and organizations for joint deployment planning and execution require integration to support joint deployment doctrine in a seamless manner. Information systems for planning and controlling joint deployments need a more coherent framework, and information systems capabilities need to be extended to the next generation of technologies. (JDPO Charter, 1999: 2)

The Chairman of the Joint Chiefs of Staff, General Hugh Shelton, sent out a message on 2 April 99 requesting CINCUSJFCOM, as the JDPO, recommend a time standard for the development and validation of a TPFDD in response to a crisis. "I propose establishment of a TPFDD development time standard . . . I do not know if this time standard should be hours or days, but it certainly cannot be weeks" (CJCS msg

022340z Apr 99). USJFCOM gathered inputs from the Service chiefs and the Combatant Commander in Chiefs (CINCs) on setting an objective time standard for a developed and validated TPFDD to respond to a short notice crisis situation. Based upon the suggestions from the various staffs, CINCUSJFCOM recommended an objective 72-hour standard in June 1999.

General Shelton, in a 12 Jul 99 follow-up message, accepted CINCUSJFCOM's recommendation and set an objective time standard for TPFDD development in response to a crisis. According to the message, when a crisis occurs, and following a start time designated by the Joint Staff, planners have 72 hours to develop and validate a TPFDD for the first seven days of the crisis. As the situation dictates, planners may have more time to build a TPFDD, however the capability of meeting a 72-hour standard must exist. General Shelton set a goal of attaining this standard by October 2000. As part of that message, General Shelton states:

> Emphasis should be placed on the changes needed to accelerate decision-making, planning, and execution processes. Your proposed initiatives for developing a joint single source data system for unit deployment, employed by a feeder system and a live-shared data base for virtual collaborative planning and execution, should speed up reengineering of the deployment process (CJCS msg 121300z Jul 99).

USJFCOM, with its added mission as the JDPO, is now tasked to make General Shelton's objective of a 72-hour time standard a reality. USJFCOM has consequently identified several areas of possible improvement that can shorten the time required to develop and validate a seven-day TPFDD to meet the 72-hour standard. Among deployment experts, it is commonly believed that the "front-end" of the deployment process, the identification and validation for deployment of forces, is the portion of the

deployment process that can offer the best room for improvement and this is where the 72-hour TPFDD is focused. USJFCOM has focused on this “front-end” of the process to identify possible changes that make the least impact on the current services systems and offer the greatest benefit in time savings. Some of these changes involve the use of new technologies, while others require a change in the deployment process itself.

One of the changes proposed to improve a part of the process is the use of collaborative planning tools to enhance the environment in which forces are identified for deployment and validated for travel in the Defense Transportation System. Collaborative planning tools, such as shared data bases and virtual meeting rooms can shorten the time to define and validate forces needed for deployment by the supported CINC. In order to leverage the use of the technology involved in collaborative planning tools, a change in the deployment process and the psychology of the stakeholders will need to occur.

USJFCOM, working with deployment experts throughout the Joint Planning and Execution Community (JPEC), recommends increasing the collaboration that occurs in three primary areas during the early, deployment planning process. The first area recommends increased collaboration during the development of the CINC’s courses of action in response to a crisis. During this early planning, USTRANSCOM experts and force providers (primarily USJFCOM and its Components) could provide the necessary detail to ensure more accurate, transportation-feasible courses of action are developed. During the second area of collaboration after the Joint Staff-designated start time, increased collaboration among various levels of staff could provide significant time savings during the sourcing (designating specific units to fill a mission) and tailoring (each unit determines which equipment to deploy in support of a specific mission)

process. Finally, the potential of collaboration could greatly improve the current sequential process of verification and validation. During this process each unit reports to its superior the specific equipment it plans to deploy and the Supported Commander validates that the units deploying to its theater are appropriate to meet his mission requirements.

Collaborative planning tools are computer technologies that enable several users to converse and collaborate real-time to accomplish a goal of an organization. A simple collaborative planning tool example is a product that allows a sophisticated *chat room* in which many, geographically separated users can communicate and share information in real-time. The advantage of a true collaborative planning tool over a simple chat room is that any form of data, in this case deployment data can simultaneously be *shared* among all users. Lotus calls this the advantage of *shared objects* (Lotus White Paper, 7).

Collaborative planning tools, although relatively new technologies to the government and the military have been used on several occasions. John Deere Corporation, Ford Motor Company, and the U.S. Navy have employed off the shelf collaborative technologies to improve their business processes. Additionally, many DoD intelligence organizations use some form of collaborative technology to maximize exchange and dissemination of intelligence information. Intelligence units at AMC and the XVIII Airborne Corps both are examples of cases where collaborative technologies are in use. These cases, which will be discussed in detail in subsequent chapters, are success stories that show how the use of a collaborative tool can facilitate a collaborative environment, an environment that relies on cooperation from many geographically separated users utilizing real-time data.

Unfortunately, the present deployment environment does not rely on collaborative technology in its process rules. The current deployment process is deliberate, sequential, and heavily relies on telephone communications and e-mail. It is essentially asynchronous and consequently the deployment data used is 'old' and may not reflect the latest changes to a crisis. This issue of using legacy data becomes critical when sourcing decisions are made for transportation assets to move forces. Furthermore, presently there is no identifiable starting point for TPFDD planning and no performance standards to measure performance of the deployment process. The typical deployment after-action report reads: "well, we got it done, but it was ugly."

Specific Problem

The problem, bearing General Shelton's message in mind, is whether a crisis response deployment TPFDD can be accomplished within 72 hours. To attain this objective time standard the TPFDD must be developed and validated for the first seven days of a deployment to level four detail (data which is expressed as numbers of passengers and individual dimensional data of cargo by equipment type by Unit Line Number). This research investigates whether collaborative tools can improve the deployment process to meet the Chairman's objective.

Research Question

How can the use of collaborative planning tools support the 72-hour TPFDD development and validation time standard?

Investigative Questions

To answer the research question, several investigative questions must be answered:

1. How does the current Crisis Action planning process operate?

2. What is the current time standard for TPFDD crisis action development and validation?

3. What collaborative planning approaches are being considered to help achieve a 72-hour time standard?

4. What evaluations of collaborative planning tool applications has the DOD accomplished?

5. What issues will affect the operational implementation of collaborative planning tools for crisis action TPFDD development?

Organization

This research project is organized into six chapters. The first provides a brief introduction to this topic and outlines how this study will be conducted. The second chapter provides some background into the current deployment processes with emphasis on crisis action planning and the time it takes to develop and validate a TPFDD in response to a crisis. The third chapter discusses what collaborative planning approaches are currently being considered by USJFCOM as candidates for achieving the 72-hour development and validation time standard. The fourth chapter investigates evaluations of the collaborative planning tools being considered for implementation in the joint deployment process. Collaborative planning implementation issues are addressed in

chapter five. The sixth chapter provides conclusions and recommendations for applying collaborative planning tools to support 72-hour TPFDD development and validation time standard.

II. Background

Crisis Action Planning and the Current Deployment Process

In order to understand the effects that a collaborative planning tool will have on the deployment process, it is first necessary to examine the current deployment process and how it fits into National Military Strategy through Crisis Action planning. Additionally, to gain perspective on the problem, an analysis of the current time standard for a validated TPFDD needs to be accomplished. This study of the deployment process in the context of crisis planning and the current time standard will illuminate problems in the process and give the changes proposed a proper perspective.

Deployment as a Strategy

The deployment of forces in response to a crisis is a reflection of the National Security Strategy of the United States. The Armed Forces has established the National Military Strategy (NMS) in support of the National Security Strategy. The NMS establishes two national military objectives: promote peace and stability and, when necessary, defeat adversaries (JP 3-35, 1999: I-2). Within these objectives are four strategic concepts: strategic agility, overseas presence, power projection, and decisive force (NMS, 2). The deployment of forces quickly and decisively to respond to crisis situations is essential to applying these concepts and achieving national objectives. This deployment of forces is the essence of force projection: "the military element of national power that systematically and rapidly moves military forces in response to requirements of war or military operations other than war (MOOTW)" (JP 3-35, 1999: I-2). The

United States deploys its forces as part of a plan of action developed and executed through either deliberate planning or crisis action planning processes.

Deliberate Planning

In peacetime, deliberate planning procedures are used to evaluate anticipated situations that may involve the United States militarily. The probability of a situation arising in the Middle East is quite high and consequently, the Department of Defense has plans ready to put into action. Essentially, deliberate planning is the building of a plan of action to respond to an anticipated crisis that will require a military response. Because deliberate planning attempts to predict the future, it must rely on current intelligence estimates. As part of the deliberate plan, deployment data in the form of a Time Phased Force Deployment Data (TPFDD) base is developed to respond to this hypothetical situation. This type of planning can take up to twelve months to accomplish and a large portion of the plan is pre-programmed deployment data needed to move forces to accomplish the operational plan (OPLAN). One important aspect of deliberate planning is that resources are apportioned based on the Combatant Command's deliberate plans. In some situations, these apportioned resources may not be available because of other commitments.

> Even though forces, sustainment, and transportation resources apportioned to a plan may be sourced to that plan's requirements in anticipation of the event, the actual situation with respect to those particular resources may prevent them from being allocated by the NCA to a real-time crisis response derived from that plan. (Joint Staff Officers Guide, 1)

Crisis Action Planning

Crisis action planning, on the other hand, is the short-notice, time-critical planning accomplished to respond to an incident or situation that requires an immediate U.S. military response. Crisis action planning, by its nature, does not enjoy the luxury of time that deliberate planning enjoys. Furthermore, very rarely will a crisis fit the deliberate, hypothetical plan sitting on the shelf. Every use of the U.S. military has experienced changes to its deployment. As a means of contrast, deliberate planning is seen as a 'best guess' or starting point for a developing crisis while crisis action planning is seen as the 'it needs to be there yesterday' type of plan. The deployment data developed in the crisis TPFDD consequently should reflect actual real-time demands for forces.

Crisis Action Planning (CAP) consists of six phases. All phases are sequential in nature and some actions may not be accomplished until some phases are completed. However, a constant theme through all literature describing CAP is the idea that "phases may be compressed, repeated, or eliminated" as the situation dictates (Joint Staff Officer's Guide, 4).

Phase I, Situation Development, begins when an event with possible national security implications occurs and is recognized and reported. Phase II, Crisis Assessment, is completed when the implications of the crisis are weighed and a decision is made on a possible requirement for military force. Phase III, Course of Action (COA) Development, is started when either the CINC for the region involved or the NCA itself develops a COA. Phase IV, Course of Action Selection, as the name implies, results in the NCA selecting a COA for the crisis. Phase V, Execution Planning begins when a

detailed operation order is prepared to support the selected COA. Interestingly, "the level of detail is proportional to the time available for planning" (Joint Pub 5.03-1, V-2). Finally, Phase VI, Execution, is completed with the decision of the NCA to deploy or employ U.S. forces.

Within these phases of CAP the Chairman of the Joint Chiefs of Staff (CJCS), with concurrence of the SECDEF, will issue several orders to military forces. These orders consist of the CJCS Warning Order, Planning Order, Alert Order, and the Execute Order. Joint Planning Summary diagram (Figure 1) illustrates where these occur in the CAP process and the relationship between deliberate and crisis action planning.

As Figure 1 illustrates, the deployment database is an essential part of JOPES and the TPFDD. According to Figure 1, the TPFDD should be exercised between phases II and III of CAP, the same time the CJCS Warning Order is issued. As will be discussed later in this chapter, what occurs in practice is entirely different.

In addition to these CJCS orders, the CJCS can issue a deployment preparation order, deployment order, or redeployment order. These orders are only issued with the authorization of the Secretary of Defense. As stated in Joint Publication 3-35: "These orders are used to increase the deployability posture of units, decrease deployability posture of units, deploy forces, redeploy forces, and direct any other action that would signal planned U.S. military action" (JP 3-35, D-2). What is interesting about these orders is that they are not typically shown on any diagrams or discussed in narratives of the CAP process.

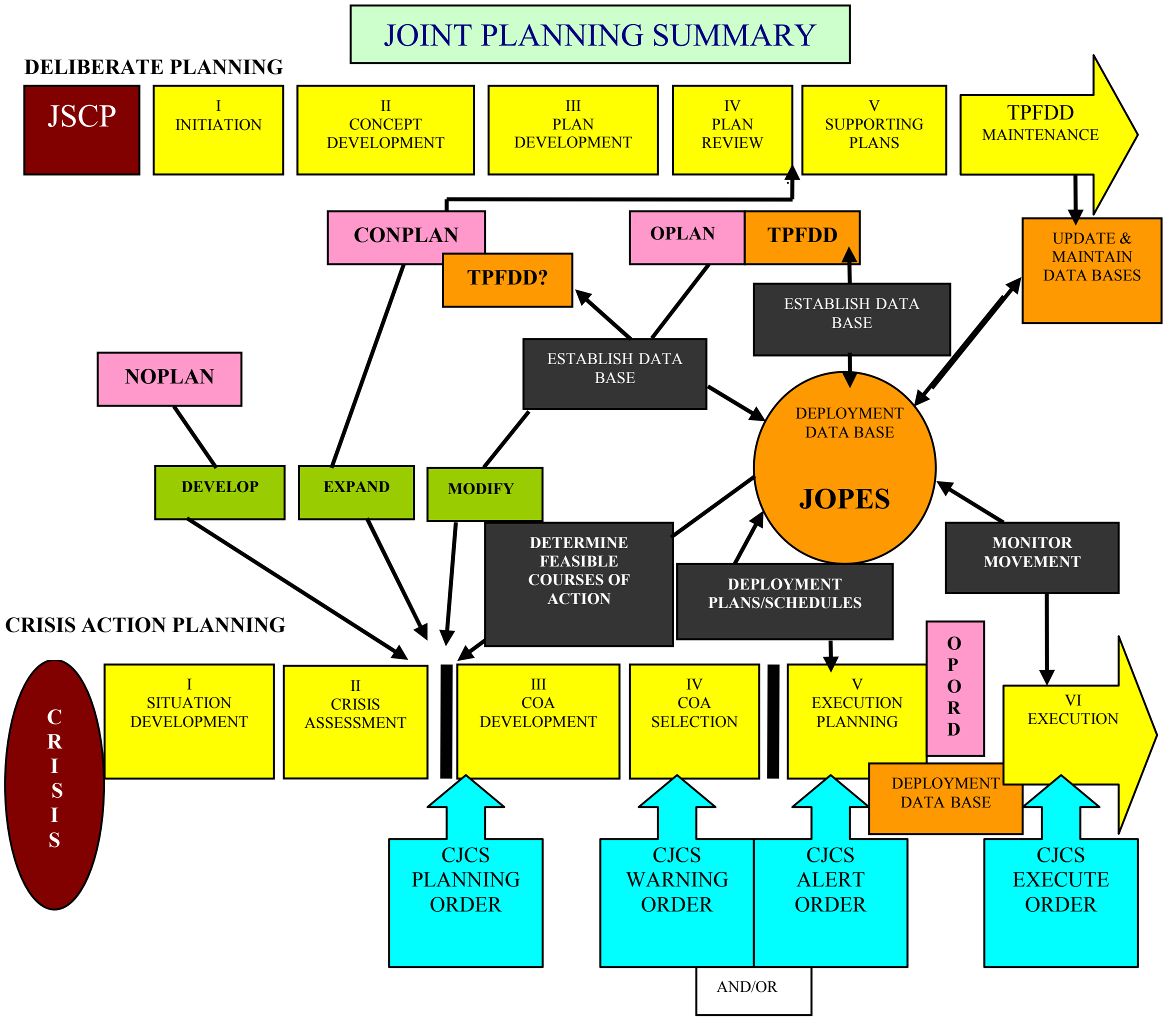

Figure 1: Joint Planning Summary (JP 3-35, 1999: A-3)

If the deployment preparation order and the deployment order are not shown in the CAP process, then when are these orders issued? According to JP 3-35, these orders will be "issued at any point in the CAP development process." Additionally, these orders may be incorporated within warning orders, planning orders, and alert orders (JP 3-35, D-2). What then is the definition of deployment and what are some of the essential elements of the current deployment process?

Definition of Deployment

Force projection is critical to meeting National Military Strategy objectives. Forward presence and rapid global mobility enable force projection. Therefore, deployment operations are a function of, and indicator of the United States being able to meet its national objectives. According to Joint Publication 3-35, *Joint Deployment and Redeployment Operations*, deployment is the movement of forces and their sustainment from their point of origin to a specific operational area to conduct joint operations outlined in a given plan or order (JP 3-35, 1999: I-4). Normally, joint force deployment is in response to an action or event that requires the United States to respond by deploying forces and material to protect US national interests (JP 3-35, 1999: I-10).

Deployment operations involve four phases: predeployment activities; movement to and activities at Point of Embarkation (POE); movement to Point of Debarkation (POD); and Joint Reception, Staging, Onward movement, and Integration (JRSOI) activities (JP 3-35, 1999: III-1). For this study, we will be concerned with the first phase of deployment operations: predeployment activities. Predeployment activities are

> those actions taken at home station or point of origin to prepare individuals, units, and material for deployment. Predeployment activities must be coordinated among the supported combatant command responsible for accomplishment of the assigned mission, the Services, and the supporting combatant commands providing the forces for the joint force mission. (JP 3-35, 1999: I-13)

This study will examine how units are tasked and validated for deployment and entered into the deployment process through the TPFDD.

The Deployment Process

The joint deployment process begins when planning is initiated for force projection operations. This planning can occur at any point in the joint operation planning process described previously.

Three predeployment activities are of particular concern for this study: *Analyze Mission, Structure Forces,* and *Validate Deployment Data*. The accomplishment of these three actions within 72-hours is the goal of an improved process. In other words, the objective is to have validated deployment data for the first seven days of a joint force deployment in response to a crisis situation.

Logically, if a deployment preparation order is received, preparation for deployment should begin. As we will see later, in many instances preparation for deployment does not occur until the *deployment order* is received. The reasons for this delay in preparations involve some of the stakeholders in a joint force deployment and become some of the challenges to improving the efficiency and effectiveness in the process.

Stakeholders involved in a Joint Force Deployment

Planning and executing of deployment operations are based on mission requirements as defined by the National Command Authority and the supported combatant command and are constrained by the time available to accomplish the mission. Because mission requirements are defined from one command, sourced from another command, moved by still a different command, and monitored by all commands, several

stakeholders have an interest in ensuring the deployment is accurate, effective, and efficient.

> Deployment stakeholders include the supported commander responsible for mission accomplishment, operational commanders of forces deploying to execute a joint force mission, and supporting commanders of forces and organizations supporting the deployment portion of a force projection mission. Ideally, all process stakeholders should endeavor to strike a balance between operational effectiveness (defined by successful mission accomplishment consistent with the support commander's force projection concerns) and deployment efficiency (optimal and economical use of deployment resources). Operational effectiveness, however, will normally take priority over deployment efficiency. (JP 3-35, 1999: I-11)

For example, an Army unit, located at Ft Campbell, Kentucky, is tasked to deploy to an African nation for peacekeeping operations. This unit is based in the CONUS and is under the command of US Army Forces Command (FORSCOM) located at Ft. McPherson, Georgia. The United States European Command (EUCOM) CINC, located at Stuttgart, Germany, is the supported commander who is responsible for the mission in the African nation. USJFCOM, located at Norfolk Naval Station, is the force provider supplying the Army unit to EUCOM's theater. USJFCOM must coordinate with FORSCOM and issue a Joint Forces Command Deployment order to send the unit to Africa. United States Transportation Command (USTRANSCOM), located at Scott AFB, is responsible for the management of the Defense Transportation System to get the unit to the Area of Responsibility (AOR), in this case Africa. If this unit were moved by air, which would normally be the case in a short-notice crisis response situation, then Air Mobility Command (AMC), also located at Scott AFB, would be responsible for the movement of the unit. Finally, the Secretary of Defense, located in Washington DC, is

responsible for the assignment of forces and lift resources to the combatant commands to perform the mission in Africa.

This example does not include all of the stakeholders involved in the deployment of this Army unit, but it does illustrate how many different and geographically separated commands are involved in this Army unit's deployment. Figure 2, which was extracted from a draft narrative for the joint future deployment process, is a basic representation of the many stakeholders and shareowners in the Joint Deployment Process (Draft, 2000: 5).

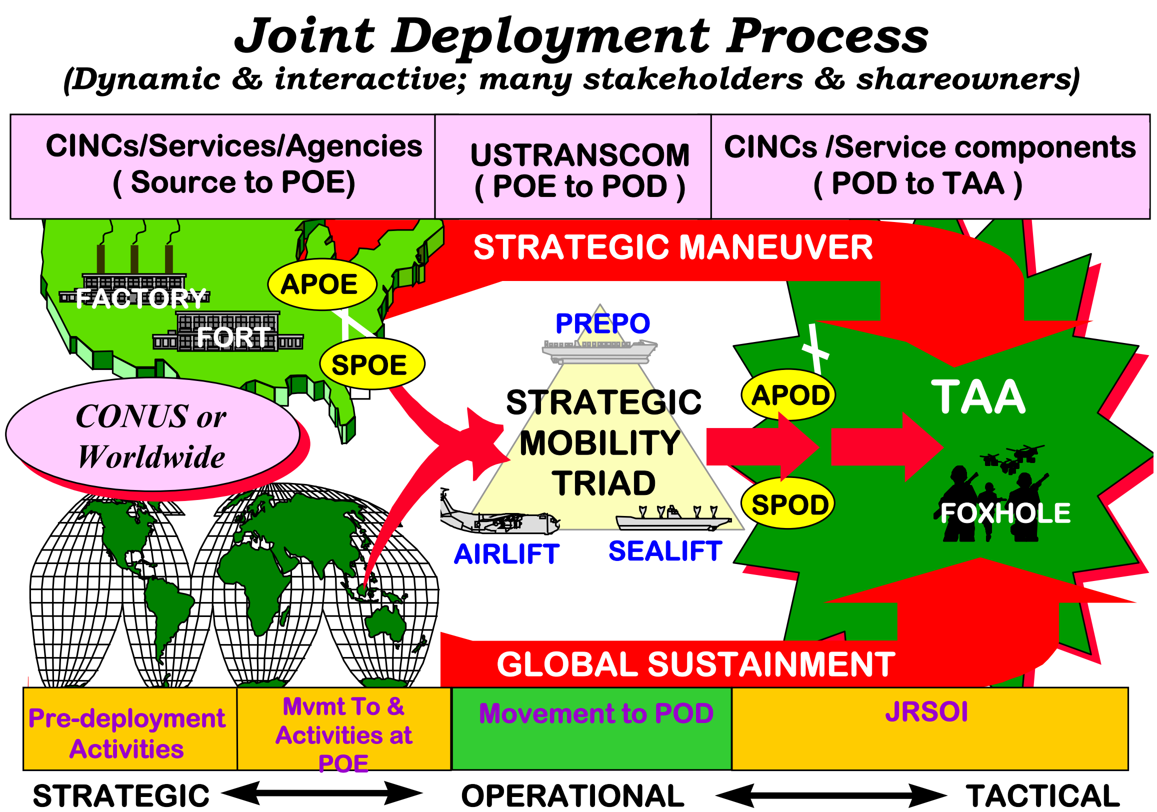

Figure 2: Stakeholders and Shareowners in the Joint Deployment Process

It is important to note that once the NCA tasks a combatant commander to accomplish a particular mission, the commander then becomes the "supported combatant

commander.” This assignment of a Supported CINC is important because these responsibilities illustrate ‘who drives the train’ with respect to the deployment of forces. The responsibilities of the supported combatant commander include: building and validating movement requirements, determining predeployment standards to include preparing for overseas movement and predeployment training, balancing and regulating the transportation flow, and effectively managing the deployment of units to its AOR (JP 3-35, II-7). The Supported Commander satisfies these responsibilities is through the use of Timed Phased Force Deployment Data (TPFDD) to get these forces into theater.

Time Phased Force Deployment Data

What is the Time Phased Force Deployment Data (TPFDD) and how does it fit into the deployment process? The TPFDD is a computer database used to identify types of forces and actual units required to support an Operation Plan (OPLAN) or Operation Order (OPORD) (JOPES User’s Guide, 1995: 14). Additionally, the TPFDD contains estimates of logistics support, identifies POEs and PODs and it can establish a sequence for moving forces into a theater of operations (JOPES, 14). The TPFDD then fits into the Joint Operational Planning and Execution System (JOPES) and is a part of the JOPES automated data processing (ADP) construct.

Current TPFDD development uses three main processes: *force planning, support planning*, and *transportation planning*. According to the JOPES user’s guide, each process must be completed in order before proceeding to the next process (JOPES User’s Guide, 17). The guide also illustrates the changes to the TPFDD and deployment processes that must occur:

> For example, force planning must be completed before support planning begins, and support planning must be finished before starting transportation planning. Also, it may be necessary to drop back to revisit previous steps, or in the worst case start over. Each step is the responsibility of one or more separate agencies or commands located around the world. This complex operation was acceptable for a multi-year deployment-based deliberate planning cycle. Today, however, emphasis has shifted to an execution-based crisis action planning procedure. A crisis action planning cycle and deployment/redeployment execution require immediate data access, and a response time measured in hours, not days. (JOPES User's Guide, 17)

This requirement for immediate access, quick response times, and coordination between geographically separated agencies or commands drives the need to change the joint deployment process to one that can produce a coordinated and validated TPFDD in 72 hours.

What does it mean in the TPFDD to have a unit *validated* for movement? Joint Publication defines validation as an

> execution procedure used by combatant command components, supporting combatant commanders, and providing organizations to confirm to the supported commander and USTRANSCOM that all information records in a TPFDD not only are error-free for automation purposes, but also accurately reflect the current status, attributes, and availability of units and requirements. Unit readiness, movement dates, passengers, and cargo details should be confirmed with the unit before validation occurs. (JP 3-35, 1999: GL-20)

The Present Time Standard

What is the present time standard for developing and validating a TPFDD for a crisis as part of CAP? Interestingly, <u>there is no present time standard for TPFDD development</u>. One of the reasons for this problem of a time standard is that there is no "start point" to start the clock to evaluate how long it takes to develop a TPFDD. As the previous discussion of Crisis Action Planning and the current deployment process

illustrates, exactly when deployment planning begins is somewhat ambiguous. Does the building of an actual TPFDD (as opposed to the notional deployment data in a deliberate plan) begin after Crisis Assessment and before COA development as the Joint Planning Summary diagram in Figure 1 suggests or does it begin only after a deployment order is issued? Evidence of previous crisis deployments suggests the latter is the case.

Examples of a TPFDD Time Standard

There are few examples of the time involved in the development of a validated TPFDD. Operation Allied Force and USJFCOM's assessment of a current standard are two cases that provide some sort of time standard.

A: Operation Allied Force

During Operation Allied Force, the "development of a validation ready TPFDD took 4-7 days (96-168 hours) after release of a deployment order resulting in transportation closure after the specified time" (Busler, 1999: 3). More importantly, this time was measured "after release of a deployment order" not after the deployment preparation order. According to Colonel Bruce Busler, head of USTRANSCOM's Mobility Control Center (MCC) East Team during Kosovo, the "CJCS prep to deploy order for Phased Air Operations issued 7 Feb 99. CJCS deployment order released 17 Feb 99. TPFDD development delayed to 21 Feb due to no prior action based on PTDO (Preparation To Deploy Order)" (Busler, 1999: 3).

The significance of this delay is that USTRANSCOM assets are waiting in anticipation of loads that will come at the last minute and units are caught flat-footed when notified at the last minute to deploy. This greatly adds to confusion and errors in

deployment. Units given no prep-time to deploy will inevitably either bring too much or too little equipment/personnel. Transportation assets ready to go but waiting tasking, then forced to quickly match assets with forces for movements will inevitably be caught with too much equipment to load (possibly of the wrong size), or too little equipment and fly or sail empty.

There are several examples of these errors that come about because of a lack of time to properly enter data and coordinate transportation. During Allied Force, ammunition was in the TPFDD to move from Hawaii to the Area of Responsibility (AOR). The data to move the ammunition was input with inaccurate ULNs (Unit Line Numbers) causing the requested load to be 225 short tons instead of the actual load of 125 short tons. The result of this error is that a C-5 flew to Hickam for cargo that did not exist (Busler, 1999: 4).

Another example of TFPDD complications involved the movement of Red Horse equipment to the AOR. "Over 100 pieces of Red Horse equipment validated by USEUCOM sailed from Livorno (Italy) to Durres (Albania) and then sent back to Livorno on the MV Golfo dei Fiori without unloading – late requirement change/late decision to notify USTRANSCOM/MSC led to wasted lift" (Busler, 1999: 2). In this situation, better collaboration could have allowed a last minute change after validation. These examples are only a few sample illustrations of the problems encountered in a delayed accurate TPFDD. Only through thorough planning and coordination can many of these examples of "wasted lift" be minimized.

B: USJFCOM Time Standard Assessment

USJFCOM, as part of its JDPO charter, made an assessment of the current deployment process in an attempt to 'see where we stand' and determine what the present process time standard would be in a perfect environment. The JDPO office determined that by utilizing the present deployment process, a 7-day TPFDD could be developed and validated in 108 hours (JDPO brief, 12). They examined the present sequential deployment process and considered present communication technologies for developing and validating a TPFDD.

The JDPO Division determined several factors that contributed to delays in deployment requirement decisions that were not a result of CINC decisions pending situation development, but delays because of the sequential nature of the process (JDPO brief, 2000: 13). First, deployment databases are service-specific, each service has its own database. According to the JDPO Division, "JOPES, phones and email are the only 'shared data base' available" (JDPO brief, 2000:12). Second, the cultural basis for a sequential process is "highlighted by the 1/3-2/3 rule (planning time for senior organization versus the subordinate)" (JDPO brief, 12). Finally, throughout the entire process (mission analysis, COA development, coordination between supported and supporting CINCs) modifications to the size and destination of the force packages occur which extends the process (JDPO brief, 12).

In both of these assessments, the 96-168 hours of Allied Force or the 108 hours of USJFCOM, emphasis needs to be placed on two points. First, these estimates are the best that can be done today; 'max performing the system' will get you a TPFDD in 108 hours

or an error ridden TPFDD in 96-168 hours. Second, these estimates do not take advantage of our transportation capabilities. According to the JDPO Division, "TRANSCOM can source crews, position aircraft and execute the first aircraft flights in about 72 hours" (JDPO brief, 22).

Based on analysis accomplished by USJFCOM, TRANSCOM, and other commands, the 72-hour time standard is an attainable, credible starting point that would be significant enough to force some process re-engineering while further using TRANSCOM's ability to alert crews and position aircraft (JDPO brief, 22). In the last analysis, the examination of the genesis of the 72-hour time standard highlights the fact that there simply has been no time standard for TPFDD development and validation and where the process begins and ends is somewhat ambiguous.

Conclusions

Planning for the movement of forces to an area of responsibility, or deployment, occurs as part of Deliberate Planning or Crisis Action Planning. Deliberate planning is notional in nature and predicts future situations that may occur. Current force apportionment to geographic commands is based on deliberate plans. Crisis Action planning is more fluid and flexible in responding to events or situations that occur throughout the world. At the heart of joint planning is JOPES, which is reliant on a developed and validated Timed Phased Force Deployment Data plan to accomplish the critical aspect of responding to a crisis, the deployment.

The present joint planning process does not have an established point at which deployment planning is to occur. It can occur at any point in the process. The fact of an

ambiguous start point can lead to confusion in deployment planning and has greatly hindered the ability to evaluate the time required to develop the TPFDD for the first seven days of a crisis. What has been found from some of the assessments of the time it takes to build a TPFDD is that it does not meet our capability to move forces. TRANSCOM can begin to move forces within 72-hours, while the estimates of TPFDD validation, which is required to move the forces, are at the absolute best case, 108 hours. Additionally, when the TPFDD is developed confusion exists between the use of notional and actual force data. Inaccuracies in the TPFDD lead to wasted lift, a resource that simply cannot be wasted.

III. Collaborative Planning Tools and Approaches

A central problem to this issue is determining which planning approach to use in a new deployment process. The idea of collaborative planning is relatively new. The continued development of computing, communications, and the Internet have made possible collaboration of many users in a virtual environment. To improve the joint deployment planning process, several collaborative approaches are being considered for use.

Collaborative Tools under consideration

A Joint Staff Tiger Team exists to evaluate various collaborative planning tools for the Department of Defense to "enhance interoperability across DoD for collaborative services" (Joint Staff msg 192355z Apr 00). US Joint Forces Command's the Joint Battle Center (JBC), located at Norfolk, Virginia, (formerly under the Joint Staff) has been tasked with evaluating five collaborative planning tools against user requirements gathered by the Tiger Team for widespread use in the DoD. The five tools to be assessed are Collaborative Virtual Workspace (CVW), Odyssey, Information WorkSpace (IWS), Microsoft NetMeeting, and Lotus Sametime (JS msg 192355z Apr 00). These systems range from heavy involvement in existing DoD organizations to commercial products. However, all of these systems have several features in common that help one to understand collaborative tools.

Common features of Collaborative Planning Tools

All collaborative planning tools have several features in common. All tools are really a bundle of products that forms a system for collaboration. A collaborative tool will use some type of audio and video conferencing, a chat room, a directory with instant messaging, program sharing and file sharing, and a type of 'whiteboard' that allows users to manipulate graphic information.

Collaborative Tools in Use or Available

Several organizations use collaborative tools to improve efficiency within their organizations. The Air Mobility Command intelligence community, among other intelligence organizations, utilizes a tool called the Intelligence Collaborative Environment (ICE). Microsoft has developed a collaborative system called NetMeeting that is being utilized by many organizations including the U.S. Navy, Deere and Company, and Ford. Lotus produces its own collaborative tools suite called Sametime that is used by IBM and the Central Intelligence Agency (CIA).

Many organizations in the DoD use two defense designed products, Collaborative Virtual Workspace (CVW), a Mitre Corporation product, and Information WorkSpace (IWS), a system designed by General Dynamics Corporation. It should be noted however, that military use of collaboration technology is *not* restricted to intelligence organizations or other specific functional areas. By examining these products, one can see the similarities between them and gain an understanding of how they are designed and utilized in the workplace.

AMC's Intelligence Collaborative Environment (ICE)

Air Mobility Command has recently used Commercial off the Shelf (COTS) technology to build a collaborative environment where AMC intelligence analysts and operators can access and communicate intelligence information throughout the world. Intelligence Collaborative Environment (ICE) forms a collaborative environment from AMC headquarters to the squadron level, even reaching the deployed unit out in the field. "It uses COTS technology to build a desktop to desktop electronic workspace. This integrated architecture provides uniform methods of exchanging and working with intelligence information among and between operators" (ICE CONOPS, 2000: 4).

ICE uses standardized word processing and briefing support, data manipulation, common access to data warehouses, interactive multimedia, computed based training, classified network access, classified e-mail, and desktop to desktop communications (ICE CONOPS, 2000: 5). The purpose of ICE in the intelligence community is to build a more efficient Intelligence Cycle of "Collection-Processing and Exploitation-Analysis and Production-Dissemination and Integration-and Planning and Direction" (ICE CONOPS, 2000: 5).

Currently the ICE system, or counterparts like it, is employed throughout the intelligence community. For example, ACC has its own collaborative intelligence system for ACC members, CENTCOM has its own system, and likewise. The present difficulty with these systems is, however, *they lack the ability to communicate with one another*; e.g., an AMC operator cannot access ACC's collaborative intelligence system.

Microsoft NetMeeting

Microsoft's collaborative system, NetMeeting, utilizes many existing Microsoft products along with the common features needed for collaboration. Microsoft states on its NetMeeting website: "using your PC and the Internet, you can now hold face-to-face conversations with friends and family, and collaborate with co-workers around the world" (www.microsoft.com, 2000). NetMeeting utilizes video and audio conferencing, a whiteboard, chat, an Internet directory, file transfer, program sharing, remote desktop sharing, security, and advance calling in its collaborative system (www.microsoft.com, 2000). Andersen Consulting published three case studies on the use of NetMeeting in organizations. The U.S. Navy, Deere and Company and Ford Motor Company all utilized NetMeeting to improve the efficiency of their organizations.

The U.S. Navy used NetMeeting in 1997 to improve the efficiency in maintenance of its ships and aircraft aboard aircraft carriers. Before employing NetMeeting, "when sailors ran into trouble repairing a piece of equipment while at sea, they would first contact a support team on shore through e-mail, phone, or naval messages" (Navy Case Study, 1999: 1). If the problem could not be resolved in that manner, the "failed part would either be flown to a repair station on shore or a technician would be flown aboard the ship" (Navy Case Study, 1999: 1).

The Navy used NetMeeting for a *telemaintenance* service that "enables them to connect technicians aboard ship with technical experts at shore side repair stations to share photos, diagrams, and collaborative applications in real time to help reduce the need for on site technical assistance from the shore station" (Navy Case Study, 1999: 1). The Navy used all aspects of NetMeeting to create a virtual environment for information exchange between the ship and maintenance experts on shore. By using NetMeeting, the

Navy saved costs and time required for technical experts to travel to the ship and increased the number of repairs that can be handled by technicians aboard the ship.

Deere & Company were looking for a way to increase collaboration while it was also aggressively expanding in international markets. The company chose NetMeeting over other products mainly because of its easy integration with the Deere's standard Windows operating system. NetMeeting enabled Deere & Company to "communicate and collaborate more effectively over its corporate Intranet" (Deere Case Study, 1997: 1).

Ford Motor Company employed NetMeeting as part of its Ford 2000 initiative. The Ford Systems Integration Center chose NetMeeting for use in Ford's corporate intranet as a way of improving communications and systems processes. "From any Windows 95 or Windows NT 4.0 operating systems-based desktop, employees worldwide can work together over the corporate intranet as if everyone were in the same room" (Ford Case Study, 1997: 1).

The ability of NetMeeting to easily integrate with the Windows operating system is one of its best advantages over other collaborative systems. A consequent disadvantage to this advantage is that it cannot integrate with non-Windows systems. This is significant because many DoD systems do not use a Windows operating system. An additional disadvantage to NetMeeting is it "lacks persistent memory in that when a collaboration session is ended, records of the meeting and data and files cannot be saved" (Frank interview, 2000).

Lotus Sametime

Lotus Sametime is similar to Microsoft's NetMeeting. Lotus Sametime groups their tools into three areas: *awareness, conversation*, and *shared objects* (Lotus White Paper, 2000: 4). Within *awareness*, Lotus uses a Sametime server to "support general awareness of online colleagues, conversation with one or more online users, and the ability to share objects with those users" (Lotus White Paper, 2000: 12). Microsoft's comparable Internet Directory and Advance Calling features match Lotus's *awareness*. Within *conversation*, Lotus utilizes similar features to Microsoft's NetMeeting and others. Instant messaging and chat conversations are integrated into Sametime. Future versions will add audio and video communications. Finally, *shared objects* encompasses whiteboarding and document sharing.

IBM utilized Sametime as part of its WebAhead initiative. According to an Andersen Consulting case study, IBM deployed Sametime to more than 120,000 IBMers without any user training or help desk support (IBM Case, 2000: 1). Additionally, since March 1999, more than 1,100 online meetings have been held supporting 12,000 meeting participants and saving IBM an estimated $1,350,000 in reduced travel expenses and reclaimed travel time (IBM Case, 2000:1). Even though the absence of any user training may be the case with IBM in this study, collaborative systems, particularly the much more complex and powerful systems that will be discussed, will need some basic training.

Collaborative Virtual Workspace (CVW)

Collaborative Virtual Workspace, produced by Mitre Corporation, is a "prototype collaborative computing environment, designed to support temporally and geographically

dispersed work teams" (cvw.mitre.org overview, 2000). CVW has been used in the U.S. defense intelligence community. CVW utilizes many of the same types of tools that NetMeeting and Sametime use (chat, instant messaging, whiteboards, sharing of files and data) however, what is unique about CVW and Information WorkSpace to be discussed later, is that CVW is organized in a virtual building. "To a user, a CVW is a building that is divided into floors and rooms, where each room provides a context for communication and document sharing" (cvw.mitre.org overview, 2000). CVW uses this *building* concept for a virtual organization, which allows people to gather in *rooms* and move from one room to another. Within the room, people can converse and share data using the same means used by NetMeeting and Sametime.

> Defining rooms as the basis for communication means that users are not required to set up sessions or know user locations; they need only enter a room. If users choose to communicate through audio, video, or text, then the communication session is established automatically for them. Users can also lock rooms and communicate privately within and between rooms. (cvw.mitre.org overview, 2000)

Additionally, within rooms, users can share documents and store them in the room for others to read or change later. The virtual room remains intact even when no one is in the room. Each room contains folders, a room recorder for documenting text chatter, documents, and a whiteboard. CVW also has the ability to restrict room access to certain individuals or groups. A document server is also a part of CVW that makes available a universal file space. The server can track information on who edits a particular document and it can enforce *single-user editing* where only one person at a time can edit a document (cvw.mitre.org overview, 2000).

A final interesting feature of CVW is the ability to use proxies, which enables people to be in two rooms at the same time. A proxy can be placed in any room the individual can access. "Through the proxy, the user can communicate textually and share text and URLs with anyone in the proxy's room. If more interaction is required, users can quickly switch places with their proxy and use the other features of CVW in the proxy's room (e.g., audio/video conferencing, documents)" (cvw.mitre.org, 2000).

Information WorkSpace (IWS)

Information WorkSpace, similar to CVW, also utilizes an organization of rooms and floors of a virtual office building. Furthermore, IWS groups virtual buildings into a virtual *city* were people can have access to buildings as well as a virtual conference center. Information WorkSpace's baseline is developed by General Dynamics Corporation and uses several corporations' tools for its system; Microsoft's Internet Explorer and NetMeeting, Sun Microsystem's Solaris, Sun Forum and Java; DataBeam's Meeting Tools, Netscape's SuiteSpot and Communicator, and PlaceWare's Conference Center and Developer's Kit are all components of the Information WorkSpace architecture (www.infoworkspace.com, 2000).

Information WorkSpace is presently being utilized as the collaboration standard throughout the Defense Intelligence Agency and the U.S. Air Force. TRANSCOM, STRATCOM, PACOM, SOCOM, CIA, NSA, Pentagon J2, FBI, ACC, and DIA are a sampling of the organizations using IWS in their intelligence systems (www.infoworkspace.com, 2000).

Information WorkSpace utilizes the same essential tools the other collaborative systems use: audio and video desktop teleconferencing, public and private text chat, bulletin board and news groups, a virtual file cabinet, and collaborative whiteboard and shared text tool (www.infoworkspace.com, 2000). Additionally, IWS offers a Virtual Conference Center that can provide interactive presentations, integrated collaborative tools, presentation tools for recording and playing presentations, and audience management tools for "full presenter/audience interaction" to over 500 people, 300 of which can have audio (www.infoworkspace.com, 2000).

More importantly, IWS was selected as the collaborative tool for use in the Joint Battle Center's Assessment of JFCOM's new deployment process and for Millennium Challenge. The assessment with its results will be discussed in Chapter 4.

GroupSystems.com's approach to collaboration

One final approach to collaboration that is a departure from the previous discussions that emphasize a hardware/software technology based approach is GroupSystem.com's work towards better collaboration in organizations. GroupSystem.com began in 1989 and was originally incorporated as Ventana Corporation. The company has since "successfully helped hundreds of organizations worldwide reach decisions faster, more efficiently and more effectively than was previously possible" (www.groupsystems.com, 2000). GroupSystem's approach is based on "an international network of more than 100 cognitive, social, and organizational scientists who research how the mind works in a collaborative environment" (www.groupsystem's.com, 2000).

GroupSystems.com believes that more efficient and effective production from organizations can be achieved through the maximization of the organization's *intellectual capital*.

> There is a new paradigm evolving within the business world in which harnessing knowledge is the key to winning markets. Businesses that capture, assimilate, mobilize and apply the knowledge of their employees and expert resources are winning market share, increasing stockholder value, retaining customers, and set the standards in their industries. These organizations have realized that the new currency of business is Intellectual Capital and the efficient production and ongoing improvement of knowledge gives them the competitive advantage they need to succeed. (www.groupsystems.com, 2000)

GroupSystems.com feels that the missing element in this new paradigm is the "automation of knowledge producing processes within and organization . . . which relies on the interactions of the stakeholders, combining their expertise and with information to make decisions and take appropriate actions" (www.groupsystems.com, 2000). GroupSystems.com believes that technology is not the only key to innovation and responsiveness through collaboration. According to Scott Edelman, President and CEO of GroupSystems.com: "We believe these technologies are important enablers, but people and process make the difference . . . the issue is psychology – not technology" (www.groupsystems.com, 2000).

GroupSystems.com was used by the USAF in the Air Force Manpower and Innovation Agency (AFMIA) at Randolph AFB. The Agency was required to undergo a re-engineering process to increase efficiencies and validate required manpower. AFMIA used GroupSystems.com methods to rework its workshops for information gathering and decision making.

> For example, we can have a group evaluate about 80 processes or initiatives against 2 to 3 weighted criteria, prioritize the list and discuss next steps in about an hour. Previously, using flip charts and sticky notes, this process would have taken days and been very painful to the group. In addition, using GroupSystems, we have buy-in of all the participants who represent thousands of people.

As can be seen, GroupSystem.com's approach to collaboration does not focus on the technological aspect of collaboration. The company instead focuses on the psychological aspect of knowledge production. The company believes it can be of value to government and military organizations "that need to improve their responsiveness to mission-critical, best-practice processes such as crisis management, planning and procurement" (www.groupsystems.com, 2000).

Conclusions

Chapter III presented several approaches to collaboration, some of which are under evaluation by the DoD's Collaboration Tiger Team. AMC's Intelligence Collaboration Environment system is an initial step at collaboration in the intelligence community. Microsoft's NetMeeting and Lotus' Sametime offer tools that make collaboration possible on a one room at a time basis. Collaborative Virtual Workspace and Information WorkSpace both employ NetMeeting and similar products as part of a virtual environment comprised of buildings and even communities. Within these buildings are virtual floors where organizations can reside and within its virtual planning rooms, collaboration can take place. Finally, GroupSystems.com takes a *knowledge production line* approach where the psychology of collaboration is examined for improvement. A combination of the proper tools that composes a collaborative planning system, combined with an emphasis on improvements in collaborative knowledge

production, may be the key to completing this essential part of meeting a 72-hour TPFDD development and validation time standard.

IV. Evaluations of Collaboration in Deployment Exercises

Bearing in mind the fact that collaboration computer technologies are relatively new, there have been few exercises evaluating collaboration tools and systems in a deployment environment. Additionally, these exercises have occurred only in the last six months.

In February 2000, the XVIII Airborne Corps conducted a collaborative exercise named Virtual Endeavor. The exercise attempted to validate in a complete virtual environment collaborative technology utilizing Information WorkSpace. In May 2000, the Joint Battle Center (JBC) conducted an assessment that examined Information WorkSpace and other tools (TC-AIMS II, JFRG II) to re-engineer the deployment process. Finally, USJFCOM J9 will be conducting phase III of Millennium Challenge, an experiment to test the re-engineered process and tools in a "distributed (virtual) environment" (JDPO Executive Summary Brief, 2000).

The lessons learned from Virtual Endeavor and the JBC Assessment combined with the goals of phase III of Millennium Challenge should provide good recommendations on a re-engineered deployment process, a process that uses collaboration as an essential part.

XVIII Airborne Corp's Virtual Endeavor

As stated earlier, Virtual Endeavor utilized Information WorkSpace (IWS) in its exercise. The stated objectives of the exercise were "to validate the technology itself while evaluating the ability of intelligence analysts to collaborate across geographical boundaries" (Frank, 2000: 33). The makeup of the exercise involved Army soldiers and

national level analysts from military and national organizations that worked in situ over the Fort Bragg network server. "The team received it's initial user training and virtual team development training five months prior to the exercise" (Frank, 2000: 33).

The first two days of the exercise was accomplished on the Ft. Bragg server and ended up with two days on a backup server at USJFCOM. Initially, problems were encountered with the group expressing their ideas with hardware difficulties. Technical problems inhibited communication and clear guidance from the team leader. The audio feature of the system was inoperative and members were only able to use text chat (Frank, 2000: 34). These problems forced a change from utilizing the Ft. Bragg computer network server to the precoordinated backup in USJFCOM. The exercise moved virtually to Norfolk, VA for the final two days of the exercise and the move occurred *within ten minutes*. "We were able to completely move the whole exercise from an Army server, to a joint or Navy server in another location within 10 minutes and press on with the exercise. The beauty of that is significant" (Frank interview, 2000). Unfortunately, after initial success with the backup, technical problems continued. Audio was regained initially, then lost. When audio was available, collaboration improved dramatically. What was learned with the loss of audio the second time was the group was able to quickly switch to text only collaboration and continue. "With the loss of audio, the team leader immediately directed the use of text chat and the team continued to march forward, continuing to discuss their requirements" (Frank, 2000: 34).

Since the group was forced to operate without audio for the first two days of the exercise, it was able to easily handle the loss of audio later in the exercise. This contingency was not planned for or prepared. "No where in their training were they

required to conduct collaboration without audio. The lesson was immediately captured and is now being implemented in XVIII Airborne Corps collaborative training" (Frank, 2000: 34).

The lesson learned in this exercise is to prepare for technical problems. As Cpt Frank states:

> On the military side, if a unit deploys and conducts a real world mission, the virtual team will be required to execute their mission regardless of whether or not there is enough bandwith. For this reason, it is strongly recommended that all organizations place more emphasis on text chat. If you don't, and the bandwith drops, your virtual teams will be unsuccessful. (Frank, 2000, 34)

Joint Battle Center's Assessment

The Joint Battle Center, the technical arm of the DoD's collaborative tools Tiger Team, conducted an assessment of IWS among other initiatives to re-engineer the deployment process as part of its overall assessment. Particular attention was paid to the Courses of Action development portion of CAP. This assessment was Phase II of a three-phase Millennium Challenge experiment. Phase I occurred from 15 March until 15 July 2000 and mainly consists of system interoperability checks. Phase III is the distributed portion of the Millennium Challenge Experiment conducted by USJFCOM J9 discussed later in this chapter. (JDPO Brief, 17 May 2000). The JBC used a systems perspective to assess IWS, the Joint Force Requirements Generator (JFRG), the Transportation Coordinator's Automated Information for Movement System II (TC-AIMS II), and enhancements to the current process as provided by the JDPO (JBC Brief, 2000).

The JBC Assessment objectives and how they relate to JDPO's re-engineering process objectives are succinctly stated in their May 2000 briefing.

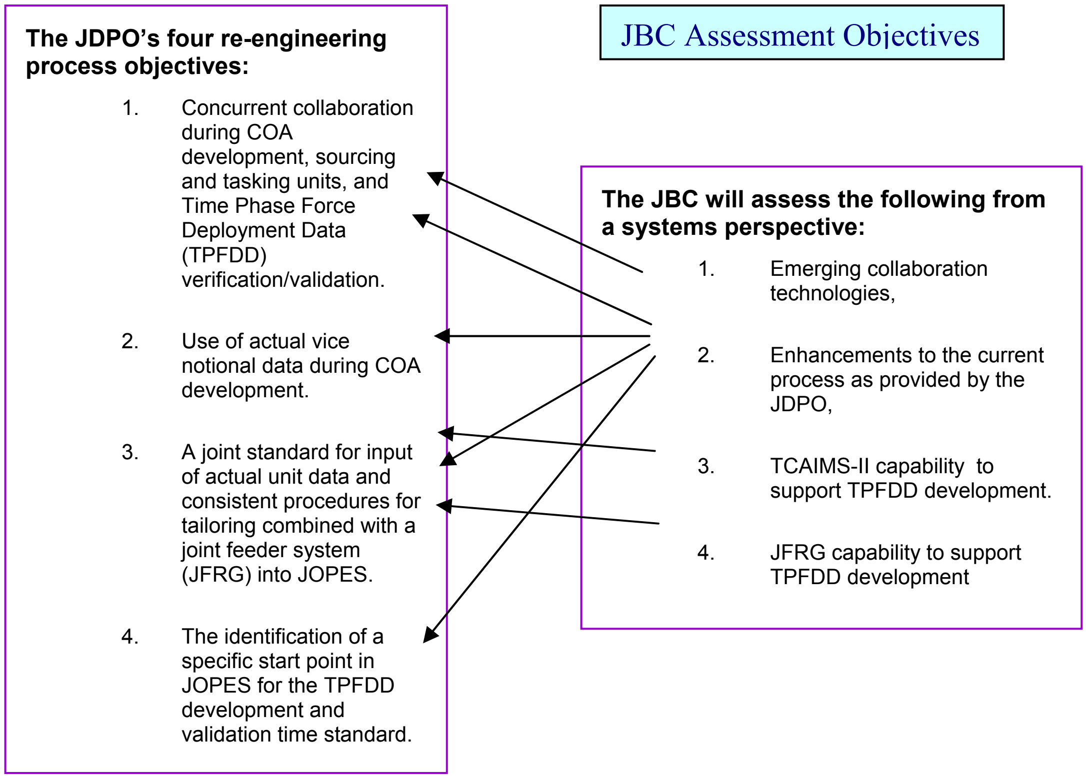

Figure 3: JBC Assessment Objectives (JBC DV Brief, 2000)

As can be seen in Figure 3, JBC objectives one and two assessed JDPO's objectives one and two that are directly applicable to the 72-hr time standard.

It is important to note that the collaborative tool is not the only ingredient in the re-engineered deployment process that will ultimately give the U.S. the capability of a seven day TPFDD within 72-hours. The JFRG and TC-AIMS II are also important parts of the new process.

The Joint Force Requirements Generator (JFRG II) is an automated tool that accelerates deployment planning and execution. JFRG II is an enhanced version of the USMC's MAGTF II (which provides automated unit level deployment planning and execution capabilities for the USMC) and is scheduled to replace it. JFRG II will be used

as a TPFDD data feeder and will interface with JOPES to “build force structures to meet mission, source required forces, develop and assess phasing/travel mode, compute sustainment requirements, and estimate airlift and sealift requirements (JDTC Glossary, 2000: 10).

Transportation Coordinator’s Automated Information for Movement System II (TC-AIMS II) is “a system designed to integrate fielded Service unique systems to provide timely and accurate passenger and cargo movement information during deployments” (JDTC Glossary, 2000: 34). Figure 4 describes where TC-AIMS II and JFRG II fit into a migrated, or re-engineered, deployment process.

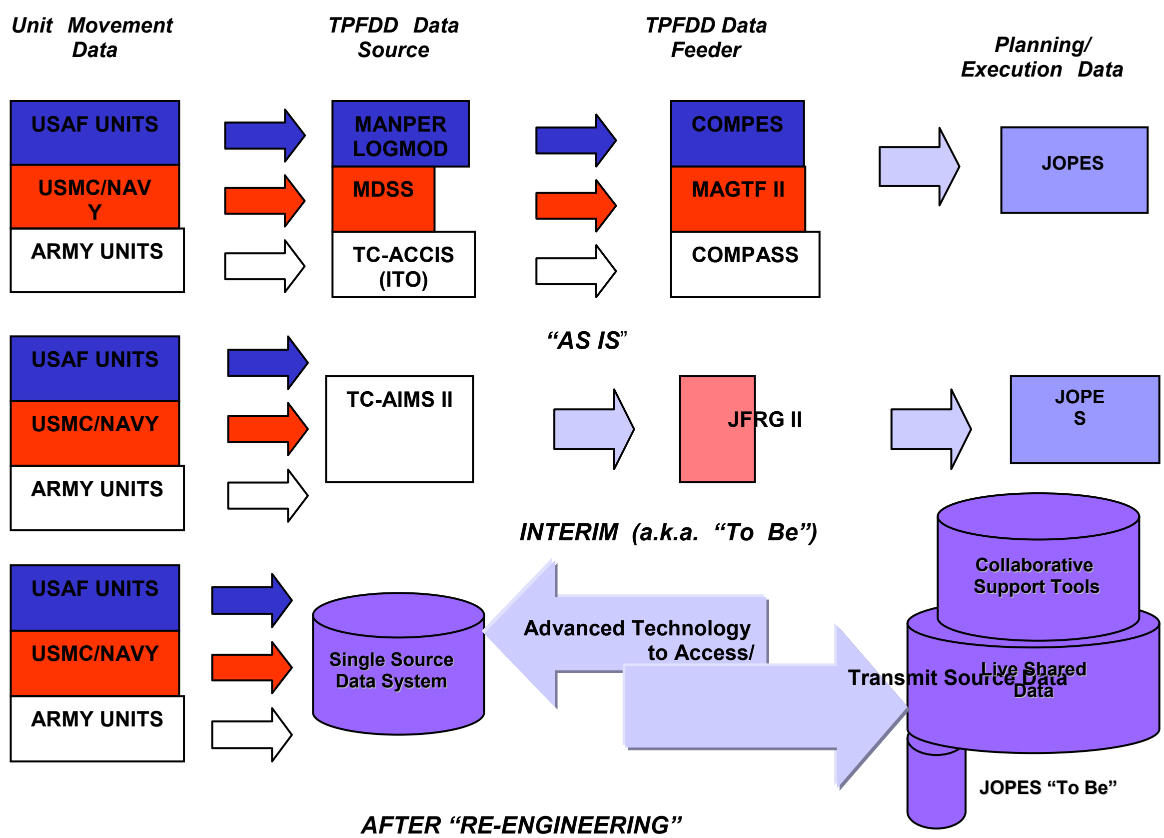

Figure 4: Current vs Re-engineered Process (JDPT Brief, 2000)

As figure 4 illustrates, the JBC specifically examined the "interoperability of systems, the integration of collaborative enablers, the 'as is' procedures reflected in Joint Pub 5.0/ JOPES Volume I and the impact of specific process changes to 'As Is' process . . . in a controlled environment" (JBC DV Brief, 2000).

The results of the JBC assessment as it related to evaluating collaborative technologies proved interesting. The initial portions of the assessment went well with collaboration adding value. Later portions the exercise saw a decrease in the use of collaboration. According to Major John Kafer from USJFCOM's JDPO Division, "all levels of command thought the collaboration was a significant aid . . . collaboration during the early, COA development phase, will be key to validating the TPFDD following the start point . . . after the start point, collaboration fell off during sourcing and tailoring of units (Kafer interview, 2000).

What Major Kafer and the JBC found was that "most staffs regretted this; they got so busy doing their own 'thing' they did not schedule meetings to resolve questions . . . *collaboration requires more discipline in its use*; *can't just put the tool out there and expect it to be used effectively*; need periodic 'meetings' to discover potential conflicts" (Kafer interview, 2000). This evaluation of the assessment is significant in that it illuminates the difficulty in breaking present staff paradigms in deployment planning.

Additionally, the assessment brought to light policy limitations that hindered the effective use of collaboration. "Collaboration was not used effectively during the validation/verification process due to a policy limitation which does not allow IWS to operate on GCCS (Global Command and Control System) workstations" (Kafer

interview, 2000). These policy conflicts and deployment planning paradigms must be changed in order to effectively use collaboration planning tools.

Millennium Challenge

The Millennium Challenge experiment, planned to occur 14-25 August 2000, is Phase III of an assessment of the deployment process and will be conducted in a full-blown exercise format. USJFCOM J9, the Joint Experimentation directorate of the command, in conjunction with the JBC and JDPO, will conduct the experiment. Millennium Challenge (MC) will involve members of all services, the Joint Staff, USTRANSCOM, USJFCOM, and other commands. The experiment will proceed under the purview of a 4-star General Senior Mentor. Essentially, the experiment will span from the Service unit level (e.g. Army Companys, AF Squadrons) to the Joint Staff.

The scenario for MC will involve the protection of a canal and the conduct of combat operations against a threatening country. Complicating the scenario, another Major Regional Contingency (MRC) is in progress elsewhere in the world. The scenario is "post 2000 . . . neutrality treaty in South America is violated . . . stability of Country West government threatened . . . country 'A' threatens . . . the U.S. acts unilaterally assigning Joint Forces Commander (JFC) South as the supported CINC" (JDPO Brief, 17 May 00). The JFC must "conduct operations to seize key terrain necessary to provide unimpeded operations of the canal and conduct decisive combat operations in Country 'A'" (JDPO Brief, 17 May 00).

Millennium Challenge will attempt to accomplish four objectives. They include:

1) Evaluate Joint Staff, Supported CINC, Supporting CINC, Components and Units' use of a reengineered joint deployment process using interactive virtual collaboration and new process rules.

2) Evaluate the ability to develop a level four detail TPFDD for the first seven days of deployment flow using clearly defined milestones and starting/ending events.

3) Establish a system and performance baseline to meet a 72-hour TPFDD objective time standard using the interactive collaborative deployment planning process, deployment information systems, and decision/analytical support tools for the Joint Planning and Execution Community (JPEC).

4) Evaluate the effectiveness of joint interactive collaboration to increase the ease of coordination and the speed of development and validation of a TPFDD. (JDPO Brief, 17 May 00)

Following the experiment, the results will be reported to the CJCS and the CINCs for future implementation. Millennium Challenge, with its large scope of participants in an exercise format, will no doubt result in valuable findings on the use of collaboration for deployments.

Conclusions

Exercise Virtual Endeavor, the JBC Assessment, and Millennium Challenge Phase III all have, or plan to evaluate the use of a collaborative tool, or system, in a military environment. Exercise Virtual Endeavor utilized Information WorkSpace in a virtual (or distributed) intelligence exercise for the XVIII Airborne Corps. This exercise, among other findings, showed the value in considering the personality and skills of the group. A group that is in the right mind-set will overcome technical problems that are certain to occur. A collaboration team must have the skills and ability to not only operate

in a perfect collaborative environment, it must operate in an environment that may encounter problems with the system and bandwith.

The JBC Assessment found that the use of IWS in a military deployment environment was of great value. Even though there were some technical problems, one of the main difficulties was with the users of the system. The group collaborating must be disciplined enough to continue to use it throughout the process in order to get the most benefit of collaborating. Deployment staffs must not slip into the old habits that are tied to the old system and only use the new system when convenient. This will lead to an ineffectual use of collaboration and will leave the group unprepared for problems encountered when using the system.

The Millennium Challenge experiment will prove to be of great value in exposing the joint deployment community to the values of using a collaborative tool in deployment planning. The level of involvement in the experiment, in addition to the complexity of the exercise, will be vital to accurately assessing IWS in the joint deployment process.

One of the greatest challenges for those assessing past and future exercises in collaborative planning is deciding which old habits to keep and which new habits to cultivate. By doing so will ensure the maximum benefit from the use of collaborative tools in the process.

V. Challenges to Collaborative Tools in the Deployment Process

There are many issues that will affect the operational implementation of collaborative planning tools for crisis action TPFDD development. These issues, if not considered, will impede improvements in the joint deployment process and will hinder the ability to meet the 72-hour TPFDD time standard objective. As stated earlier, the deployment process involves many stakeholders. The deployment process involves all services, all government agencies that need to operate in a different location, and all levels of the national command structure who decide on deployments. Consequently, the deployment process is affected by the personality of these organizations and individual staffs that must plan a deployment.

The way an organization communicates internally and externally could present some problems when a collaborative tool is integrated into the process. Additionally, as the joint deployment process involves all services, there are service-centric issues to contend with as a new process utilizing new technology is integrated into the deployment system. Finally, challenges to the implementation of collaborative planning tools for deployments may be found among the various geographic and functional commands. The nature of the relationship between the Supported CINC (mainly the CINCs staff) and the Supporting CINCs as seen through staff personalities may cause some friction and difficulty.

Focusing specifically on military organizations that are involved in deployments, this chapter will examine some issues that could impede the operational employment of collaborative tools as part of a re-engineered deployment process.

Communication Problems

Communication problems associated with the implementation of a collaborative planning tool go beyond the basic problem of good connectivity. The problems of bandwith, voice communications, and satellite communication are all technical issues that will continue to be and will always remain technical problems to be resolved and improved upon and will not be addressed in this study. What will be discussed are the barriers to communication that occur when groups collaborate. Essentially, a challenge to the implementation of a collaborative tool is getting the group to communicate effectively in this new media.

Effective Communication, as defined by Ricky Griffin in Management, is "the process of sending a message in such a way that the message received is as close in meaning as possible to the message intended" (Griffin, 1999: 549). A collaborative team may lose communication effectiveness when the group, as Cpt Franks states, "loses focus" (Frank, 2000: 19). "It is easy to lose focus in a collaborative session. Each member has the responsibility of staying focused" (Frank, 2000: 19).

Collaboration occurs whenever more than one-person get together to reach a decision and those two people are separated by as little as an adjoining office. "Group Collaboration occurs when a collection of people sharing ideas, information and similar objectives participate in a collective knowledge transfer experience" (Jensen, 1999: 7). However, when a collaborative tool like Information WorkSpace is introduced, new communication dynamics tend to occur. "Individuals will have to learn how to operate as part of a virtual team. The communication processes required to participate as a member in a virtual team are not natural" (Frank, 2000: 18). Cpt Frank, in his First Edition of

"Techniques & Strategies for Virtual Teams," discusses the concept of *Collective Participation*: "The term Collective Participation seems redundant in its very nature. However, participation alone does not ensure success. Collective Participation is the ability of a virtual team to work together, accomplishing one or more objectives, with every team member *actively* engaged in the collaborative session" (Frank, 2000: 19). Cpt Frank then proceeds to discuss specific techniques to facilitate good group communication in this new environment that will help the group work as a *Virtual Team*.

Research has been conducted on how people in networks and work teams communicate with one another. Griffin describes five basic networks for five-person groups: "the Wheel, 'Y', Chain, Circle, and All Channel" (Griffin, 1999: 555). Figure 5 describes these five types of communication networks. According to Griffin, "These vary in terms of information flow, position of the leader, and effectiveness for different types of tasks" (Griffin, 1999: 555).

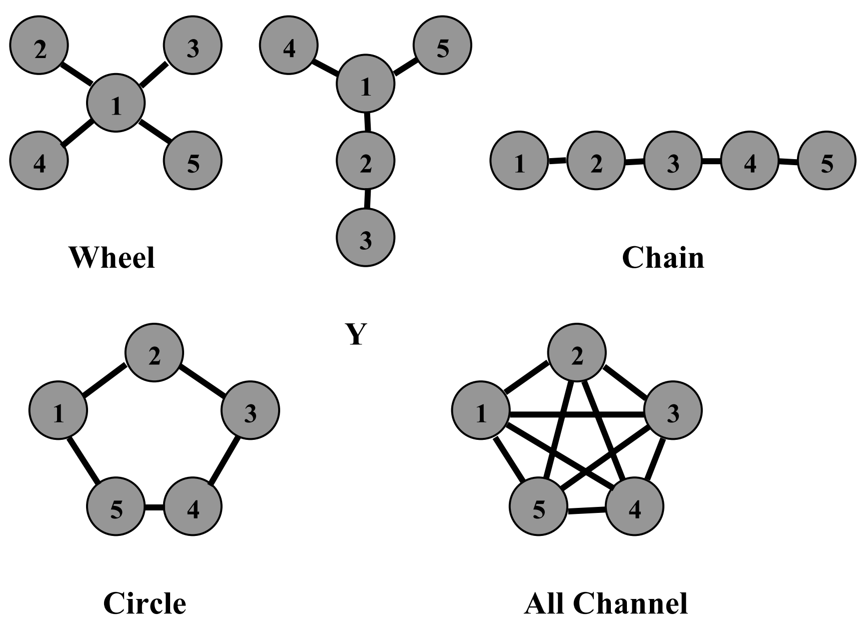

Figure 5: Types of Communication Networks (Griffin, 1999: 555)

These types of networks range from the most centralized (wheel) to the most decentralized (all channel) network. As seen in figure 5, the most centralized network would most likely have its leader in the center. Would a collaborating group on building a deployment have a leader? Most likely yes, as this is the nature of military organizations.

Interestingly, what research has shown, according to Griffin, is that for simple routine tasks, a more centralized network is most efficient. For complex, nonroutine tasks, a decentralized network works best. In decentralized networks, the role of the leader is somewhat lessened. "Everyone participates equally, and the group's leader, if there is one, is not likely to have excessive power" (Griffin, 1999: 556).

Another issue in studying the communication within a collaborative group is whether the group collaborating is horizontal or vertical. Horizontal communication typically flows laterally within an organization among colleagues or peers on the same organizational level. Vertical communication flows up and down the organization from managers to subordinates among different levels of the organization (Griffin, 1999: 557). A collaborative group that is vertical may find difficulties maximizing collaboration because of the hierarchical nature of the military organization. For example, a group that includes colonels along with captain action-officers may find difficulties in getting the captains to 'speak up.' In the military organization, whether or not one is designated the 'leader,' the highest-ranking officer is many times assumed the leader.

For collaboration on complex tasks, like building a crisis TPFDD, a decentralized network will more than likely be required. It will be critical for the operational

employment of a collaborative planning tool in the deployment planning process to take into consideration the communication dynamics of the group.

Service-Centric Issues

Each military service, when jointly collaborating, brings its own service personality and culture in addition to its own service-unique processes and technology. As stated earlier, the JFRG II is an enhancement of an U.S. Marine Corps deployment system. Just as one of the challenges to a re-engineered deployment process is integrating service-unique deployment data feeders, those services used to communicating in their own service deployment jargon must now converse more closely in a joint deployment jargon.

One of the technical challenges to collaboration relating to the services is integrating the individual service TPFDD data feeders into the deployment process. The present process involves separate data feeders for each service. Figure 4, from the JBC Assessment section of chapter 4, illustrates the separate service systems and how a re-engineered process will integrate the separate systems.

As figure 4 illustrates, TC-AIMS II and the JFRG II are integrators of existing service data systems as part of deployment process 'to be' eventually leading to a single source data system. Even though the technology will integrate, each service has its own operators of their respective individual system and they too must learn to integrate into the new system. The ability of individual services to accept and adopt TC-AIMS II and JFRG II into a new process will affect the ability to implement collaborative tools.

As can be imagined, some services believe in their own systems and their own acronym defined culture. A joint system of collaboration must have a common language and a common database that is devoid of individual service characters; collaboration must be truly ‘purple.’

Command-Centric Issues

One of the results of the Goldwater-Nichols Act and the Unified Command Plan is the establishment of joint unified commands that broadly have functional or geographic responsibilities. These commands have developed their own individual personalities and attitudes towards deployment and deployment planning. These attitudes are mainly reflections of the regions where the commands operate and the personalities of their respective commanders. This is a healthy result of the Unified Command Plan as it gives the warfighter the proper perspective on the region in which it operates. For instance, Pacific Command (PACOM) obviously is focused on the naval component and the ‘tyranny of distance’ because of geographic makeup of hundreds of island-nations and a vast area of ocean. These personalities however can become cultural barriers to collaborative tools in a deployment process.

Dr. Maybury, from Mitre Corporation, discusses how important it is for an organization to break down cultural barriers in order to gain acceptance for collaborative tools.

> As collaboration environments become mature enough to be piloted, the collaboration technologies need to be integrated into the mission to assess the impacts on both the organization and the mission . . . many collaboration pilots fail not because of the technology but because of cultural barriers towards the tools and lack of user acceptance. (Maybury, 2000: 9)

The cultural barriers an organization may have can be very detrimental to the development of a TPFDD.

For example, one component command's view is that TPFDD data are notional (which is mainly true in deliberate planning) and they will not build a TPFDD until the last possible moment. "As for the TPFDD, we have intentionally NOT developed it because one of our big lessons learned from the thrash in the fall was that notional planning causes too much pain, confusion, wasted time, and wasted preparation effort on the part of the wings" (Busler, 2000: 3). A re-engineered process, for it to succeed, must break this mindset and convince the planner that the use of collaboration will not lead to 'wasted time.'

> Another possible challenge to the re-engineered process and collaboration is what already exists in the current process; friction between commands at process seams. Process seams may occur at functional or organizational interfaces when physical resources or information is transferred. Friction between operational and supporting stakeholders process seams reduces the operational effectiveness and efficiency of the deployment process. More importantly, friction impedes overall mission accomplishment. (JP 3-35, 1999: I-12)

At any point in the process where one command transfers responsibility to another, friction is likely to be generated. When TRANSCOM releases tactical control (TACON) of some of its assets to the theater, as was the case with C-17s during Task Force Hawk, friction could possibly occur. According to General Robertson, CINC USTRANSCOM, "the heavy use of the C-17 as an intratheater airlifter in Europe 'robbed all other CINCs of their day-to-day exercise and sustainment capabilities while Kosovo was going on' . . . the operation raised their interest level" (Air Force Magazine, 1999:

32). In this case, if another conflict would start somewhere else in the world, resource contention is bound to occur.

This is an example of why it is important to re-engineer a deployment process that reduces or eliminates these seams. While a collaborative tool can reduce these seams, for a migrated or re-engineered process to work, you must have top-down management and senior management buy-in for the use of collaborative planning tool.

Conclusions

There are many challenges to the successful operational implementation of collaborative planning tools. One of the inherent challenges to collaboration in-groups is the dynamics of communication. How the group communicates and collaborates must be studied to gain the greatest benefit from the use of collaborative tools. This study will not only be important to overcoming technical challenges that will almost certainly occur, it also will aid in surmounting possible service-centric and command-centric problems.

Another challenge to the implementation of a collaborative tool is the use of service-centric deployment planning, data systems, and jargon. In order to be effective, all services must not only be integrated technologically, but also in mindset. The ‘old way of doing things’ as a service when it comes to deployments must be changed.

Finally, command-centric challenges must be conquered to ensure the maximum benefit can be gained from collaborative planning in a re-engineered deployment process. Friction that can generate at deployment process seams must be minimized in a new process that attempts to eliminate those seams. Equally challenging, command-centric cultural biases towards the deployment process are challenges that will not only hinder

collaborative planning efforts but may jeopardize the effectiveness of a re-engineered deployment process. The attitude that 'JOPES never works', 'the TPFDD is only for notional planning', and 'we'll wait until the last possible minute, then hand jam it into the flow' simply will have no place in collaborative planning in a re-engineered process. Soldiers, sailors, airmen, marines, and civilians who believe this must change their attitudes when introduced to collaborative planning and the new process. The cultural baggage of the past must be left at the door. The tool without some changes in the culture will fail.

As this chapter attempted to illustrate, quite possibly the greatest challenge to collaborative planning will not be technology. The greatest challenge to planning in a collaborative environment will be people. A re-engineered process utilizing new technology spanning such a large scope will undoubtedly encounter challenges during its integration and implementation. The fact that the deployment process literally spans the world, encompasses all services and most government organizations, and involves all organizations both vertically and horizontally, should show that any change to it will provide some challenges; from the 'fort to the foxhole' and from the President to the soldier.

VI. Conclusions and Recommendations

> "Deployment is not just a CINC or service issue—it's a national issue. We made a commitment as a nation to do rapid deployments from the States. Our deployment capability has not stepped up to this yet."
> (Lt. General Burnette DCINC/USACOM)

According to Ricky W. Griffin in his text Management: "Management is a set of activities (including planning and decision making, organizing, leading, and controlling) directed at an organization's resources (human, financial, physical, and information) with the aim of achieving organizational goals in an efficient and effective manner" (Griffin, 7). Put another way, efficient and effective use of organizational resources helps ensure an organization achieves its goals. Collaboration technology has been designed and produced to enable organizations to support complex problem solving that a single individual or organization cannot solve. It allows groups of people to work together without regard to time and distance. Collaborative technology is asynchronous and crosses geographic and organizational boundaries.

In the area of joint military deployments, it has been shown that the current process of predeployment activities that involves the development and validation of a TPFDD is not efficient or effective. The current process is sequential, deliberate, relies on notional and inaccurate data, and when using current communication systems is slow. The result is an ad-hoc system that gets the job done in a less than desirable manner. "Unfortunately, the limited interoperability of today's systems creates friction at all levels of the deployment planning process . . . the pressure of crisis action planning can significantly strain such an ad hoc system" (Kosovo after action, 1999: 35). With limited

transportation resources, the DoD cannot afford errors in deployment data. The use of notional data in a deliberate plan leads to confusion and inaccuracies in the use of actual deployment data. The re-engineered deployment process must rely on actual data and force lists to be successful. With the advent of new information technology, the era of notional data for planning should be over. Accurate deployment data and the ability to accommodate last minute changes to operational plans must be made a reality to maintain effectiveness and improve efficiency in a rapidly changing world.

In addition, it will be critical for supporting commander's planning staffs to be involved in the deployment process as soon as possible. The sooner the force providers can see what the supported commander is considering and planning for deployment, the sooner the force provider can plan and prepare its forces. The sooner that TRANSCOM is involved in the deployment process, the better and more efficiently it can plan and schedule transportation resources.

The main goal of a re-engineered deployment process is to give the United States the capability of building a TPFDD for the first seven days of a crisis within 72-hours. This will give the supported warfighting commander the greatest flexibility for last minute changes while still providing accurate and well-aimed forces to the crisis area. Additionally, supporting commanders will be able to conserve its scarce resources and efficiently and effectively utilize them.

> Successful deployments are characterized by careful planning and flexible execution. Careful and detailed planning ensures that only required personnel, equipment, and materiel are scheduled for movement, unit movement changes are minimized, and the flow of personnel, equipment, and materiel into the theater does not exceed lift availability and the theater reception capability" (JP3-35, I-16).

The re-engineered, or migrated, deployment process that uses collaborative planning as an integral part will ensure successful deployments through careful planning and flexible execution.

The data shows that achieving the 72-hour time standard for development and validation of a TPFDD for the first seven days of a crisis *is possible*. The technology is available to make a collaborative environment for the joint deployment community. There are several collaborative tools, or systems of bundles of tools, that can accomplish the job of collaborating. As stated in chapter three, most collaborative tools utilize the same components. Information WorkSpace and Collaborative Virtual Workspace both provide capable systems that, even though there are few technological problems to solve, will be able to provide the joint deployment community with an excellent environment for collaboration.

It is my opinion, however, that the greatest challenge to the implementation of collaborative planning will be overcoming the 'psychology' factor. I believe Mr. Scott Edelman is correct when he states in his CEO statement about GroupSystems.com that "*the issue is psychology – not technology*" (Edelman, www.groupsystems.com). He elaborates by stating that:

> Many believe that technology alone will drive innovation and responsiveness through system integration, information sharing and collaboration. We believe these technologies are important enablers, but people and process make the difference in creating wealth . . . Leveraging Intellectual Capital so that knowledge can be produced more efficient is critical if we are to achieve the benefits of e-business and e-government. (Edleman, 2000: 2)

The initial results of the JBC Assessment and the results of Exercise Virtual Endeavor show that the technology capabilities were not the main challenge. The main

challenges were the people using the system. For Exercise Virtual Endeavor it was the ability of the group to overcome bandwith problems with the system, which will inevitably occur, and for the JBC Assessment the challenge of maintaining discipline in using the system. Hopefully, Phase III of the Millennium Challenge experiment will further integrate the deployment planners with the collaborative planning tool and valuable lessons can be learned in the use of collaborative technology. Dr. Mark T. Maybury succinctly states “Success of the collaboration tools revolves around the people using the tools, and focus needs to be given to the effects of the collaboration tools on the individuals and teams using the tools” (Maybury, 2000: 9).

Collaborative technologies, as seen in this study, are relatively new. Only recently have the Internet, e-mail, voice and audio technology, and computing technology advanced to such a point that makes seamless collaboration of information and communication possible. The computer is increasingly becoming more a mechanism for communications and collaboration (Maybury, 2000: 1). However, there is an inherent danger in applying a new technology. That danger is in the application.

> Technology can transform the military. More importantly it can revolutionize coalition operations. Technology is the engine that will drive our organizations forward, and it must constantly evolve to support as well as help shape our strategies. Technology is the responsibility of everyone not just technical experts. Using technology to speed up a flawed process is like trying to help a drunk get home by giving him the car keys to a Porsche: he’ll still crash; he’ll just be going faster when he hits the wall. We need to determine what technology will add value and then look for the tools needed to deliver it . . . the real Revolution In Military Affairs is our ability to more effectively command and control by having greater situational awareness. Deploying and employing the right force at the right time needs to be our goal (Jensen, 1999: 7).

The crucial point is that in order to successfully implement collaborative technologies to the deployment process; the process *must be re-engineered*. Additionally, how the military organization communicates as a group must be studied. Group dynamics in the military structure are unique (the issue of rank being one) and how the group collaborates on an extremely complex task like the deployment of numerous forces to a crisis using scarce resources to do it, will be crucial. Service-centric and Command-centric issues must be resolved, if they become a problem, to successfully implement the new process.

Collaborative technologies, as used in a collaborative tool, will be an essential part of re-engineered joint deployment process. The current process is not performing to the level that can be attained with current information technologies. A 72-hour TPFDD time-standard for the first seven days of a crisis is not only possible with current technologies; the new time-standard could be a lot less. The actual time it can take to build an accurate TPFDD is the subject of some debate, but the 72-hour time-standard is, in my opinion attainable, and more importantly, will force a process change and the related cultural and psychological changes needed.

A TPFDD in 72-hours for the first seven days of a crisis is an important capability for the United States. Not all crises will require TPFDD within 72-hours and the TPFDD developed and validated will be for only the first seven days of a crisis, but this capability will be a significant improvement over the current process and it will lead to a process that utilizes information technology that is now just emerging. The 72-hour TPFDD time-standard, utilizing collaborative planning tools, will give the U.S. military the deployment capability that matches our commitment to the nation to rapidly deploy from

the United States to a crisis. When this time-standard, along with its accompanying changes, is accomplished, we will be, and will continue to be the world's premier deployers.

Appendix A: Acronyms

ACC	Air Combat Command
ADP	automated data processing
AFB	Air Force Base
AFIMA	Air Force Manpower Innovation Agency
AIT	automated identification technology
AMC	Air Mobility Command
AMS	Asset Management System
AOR	area of responsibility
APOD	aerial port of debarkation
APOE	aerial port of embarkation
C2	command and control
CAP	crisis action planning
CIA	Central Intelligence Agency
CINC	commander in chief
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CJCSM	Chairman of the Joint Chiefs of Staff Manual
COA	course of action
COCOM	combatant command (command authority)
COMPASS	Computerized On-line Movement Planning and Status System
COMPES	Contingency Operation/Mobility Planning and Execution System
CONPLAN	operation plan concept format
CONUS	continental United States
COP	common operational picture
COTS	commercial off-the-shelf
CRAF	civil reserve air fleet
CVW	Collaborative Virtual Workspace
DIA	Defense Intelligence Agency
DIRMOBFOR	Director of Mobility Forces
DOD	Department of Defense
DTS	Defense Transportation System
DV	distinguished visitor
FBI	Federal Bureau of Investigation
FORSCOM	United States Army Forces Command
FUNCPLAN	functional plan
GCCS	Global Command and Control System
GCSS	Global Combat Support System
GDSS	Global Decision Support System

GTN	global transportation network
ICE	Intelligence Collaboration Environment
ISB	intermediate staging base
ITV	in-transit visibility
IWS	Information WorkSpace
J2	Intelligence Directorate of a joint staff
J3	Operations Directorate of a joint staff
J4	Logistics Directorate of a joint staff
J7	Operational Plans and Interoperability Directorate of a joint staff
J9	Joint Experimentation Directorate of a joint staff
JBC	Joint Battle Center
JDPO	Joint Deployment Process Owner
JDTC	Joint Deployment Training Center
JFC	joint force commander
JFRG II	Joint Force Requirements Generator II
JLOTS	joint logistics over-the-shore
JOPES	Joint Operation Planning and Execution System
JP	joint publication
JPEC	Joint Planning and Execution Community
JRSOI	joint reception, staging, onward movement, and integration
JSCP	Joint Strategic Capabilities Plan
JTAV	joint total asset visibility
JTF	joint task force
LOI	letter of instruction
MAGTF II	Marine air-ground task force
MCC	movement control center
METT-T	mission, enemy, terrain and weather, troops and support available, time available
MOOTW	military operations other than war
MSC	Military Sealift Command
MTMC	Military Transportation Management Command
NCA	National Command Authority
NMS	National Military Strategy
NSA	National Security Agency
OCONUS	outside the continental United States
OPCON	operational control
OPLAN	operation plan
OPORD	operation order

PAX	passengers
POD	port of debarkation
POE	port of embarkation
SECDEF	Secretary of Defense
SPOD	seaport of debarkation
SPOE	seaport of embarkation
TACON	tactical control
TAA	tactical assembly area
TALCE	tanker airlift control element
TAV	total asset visibility
TC ACCIS	Transportation Coordinator's Automated C2 Information System
TC-AIMS II	Transportation Coordinator's Automated Information for Movement System II
TD	theater distribution
TPFDD	time-phased force and deployment data
TPFDL	time-phased force and deployment list (used in deliberate planning)
UCP	Unified Command Plan
USEUCOM	United States European Command
USJFCOM	United States Joint Forces Command
USMC	United States Marine Corps
ULN	unit line number
USACOM	United States Atlantic Command (now USJFCOM)
USCENTCOM	United States Central Command
USCINCTRANS	Commander in Chief, US Transportation Command
USPACOM	United States Pacific Command
USSPACECOM	United States Space Command
USSTRATCOM	United States Strategic Command
USSOUTHCOM	United States Southern Command
USTRANSCOM	United Stated Transportation Command

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Vita

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ABSTRACT (*Maximum 200 Words*)

The reduction of forces assigned overseas has led to an increased reliance on deployment of forces from the CONUS. The current joint deployment planning process is inefficient and does not match the capabilities of U.S. transportation resources. To facilitate changes to the deployment process, senior leadership has set a time standard for development and validation of a TPFDD within 72-hours for the first seven days of a crisis. Part of improvements to the deployment process needed to meet the 72-hour time standard will be the use of a collaborative planning tool for deployment planning. There are several tools available for this purpose and some collaborative tools are currently used in defense intelligence organizations. Within the last five months, initial assessments of deployment collaborative planning have been conducted. The results of these assessments show that the technology exists to conduct collaborative deployment planning however, the greatest challenge to the operational implementation of a collaborative planning tool will be overcoming communication, service-centric, and command-centric issues. In the last analysis, the people and not the technology will decide whether collaborative planning and the attainment of the 72-hour time standard will be possible.

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